ENERGIZING CALIFORNIA AEROSPACE

Recommendations to Retain, Expand and Grow 21st Century Aerospace in California

2008 Report of the
Aerospace Advisory Committee to the
Commission on Economic Development
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presented by

The Honorable Andrea Seastrand
Executive Director, California Space Authority
Chairperson, Aerospace Advisory Committee

Aerospace Advisory Committee

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- Susan Sloan, VP, Mission Assurance, Raytheon Co.
- Gary Toyama, VP Southern California Region, Integrated Defense Systems, The Boeing Company

Space Services from Aerospace Support A High Quality of Life

- Environmental Monitoring (ocean/wildlife/pollution/climate change)
- Agriculture (precision farming, yield increase)
- Entertainment (Global news, sports, weather, satellite TV/radio)
- Telecommunications (global/mobile/cell)
- IT (aerospace huge software developer/customer)
- Public Safety (communications, GPS, storm watch)
- Homeland Security (airport security, ports, border monitoring)
- Planning/Transportation (GIS, urban planning, bus tracking)
- Innovation (GPS, CCTV, space tourism)
- Education (distance learning)
- Medicine/Health Sciences (telemedicine, sat-linked pharmacies)
- Financial (bank transfers, point-of-purchase data)
- Web-based Services/E-commerce (Go-To-Meeting/EBay)

Other CED Industries Benefit from Aerospace Technology

- Agriculture
  - Precision farming
  - Remote sensing for environmentally conscious irrigation
- Biotech
  - On-orbit research to accelerate pharmaceutical findings
  - Future space-based pharmaceutical manufacturing
- Global Goods Movement
  - State of the art air transport
  - Container/fleet management
  - Cargo plane/ship tracking and navigation
- Entertainment
  - Global broadcasting (news, sports, weather)
  - Satellite television, radio and now emerging sat-cinema
- Tourism
  - Air transportation research/development
  - Emerging space tourism sector events (e.g. SpaceShipOne)

Economic Value of California Air and Space

- California is a global aerospace leader
- Huge contributor to state's export ratio
- Largest CA employer an aerospace corp
- Contributor of 250,000 CA jobs
- Family-wage jobs averaging $60,000+
- 6000+ aerospace suppliers
- California aerospace =27% of nation's
- California space=31% of U.S. space
- ***Economic impact of CA aerospace: $53 billion***

Proud Aerospace Legacy/Global Center of Aerospace Excellence

- Birthplace of aircraft industry
  - first military/commericial aircraft, jet engines
- Forefront of space from 1950s to today
  - developed Apollo lunar rover, lunar module, Space Shuttle Orbiter, Int'l Space Station, GPS, Mars landers, major earth observations systems
- Largest concentration aerospace assets
  - 3 of 10 key NASA sites; LAAFB/Space & Missile Systems Center; Space & Naval Warfare Systems Command; Edwards AFB, Vandenberg AFB; ~7000 suppliers

Aerospace Workforce Crisis

- ***California employs 18% of U.S. science/engineering workforce, only produces 9%***
- Average age of aerospace worker = 54
- Estimated 2 million+ technical workers needed in next few years
- Est'd six technicians for every engineer; high California drop-out rate critical
- ***Science/tech careers account for 50% of U.S. GDP – State & U.S. economy at risk***

Aerospace Challenges

- Technical workforce crisis – aerospace desperate for science, technology, engineering & math (STEM) workers
- U.S. export licensing regulations
- Lack of business friendliness, incentives
- Foreign competition
- High cost of doing business in California – aerospace research indicates 30% differential
- Lack of recognition, support from California policymakers

Committee Recommendations

Recognize/celebrate California Aerospace

- Highlight air/space in Gov/Lt. Gov speeches, reports
- Celebrate corporate, gov't & entrepreneurial "firsts"
- Showcase California aerospace infrastructure
- Champion nationally, internationally value of CA as premier center of aerospace suppliers and comm'l, civil and military aerospace
- Celebrate high-visibility achievements of CA NASA
- Seek ongoing State understanding of California air and space impact on California economy and state's other key industries

Committee Recommendations

Support Air/Space Companies, Infrastructure

- Establish executive-level linkage: key aerospace corps and high-visibility entrepreneurs, host annual status meeting
- Executive level linkage w/military base commanders
- When budget allows, re-establish Office of Military and Aerospace Support to ensure links w/base communities; adopt recommendations in OMAS report
- Provide executive office linkage/support for key aerospace company, mission attraction/retention – ensuring response critical to retaining COE status
- Build/support CA aerospace champions within Legislature and Congressional Delegation
- Assist in site comparisons, promoting alternate CA sites

Committee Recommendations

Leverage Statewide Air/Space Technologies to Address California Priorities

- Explore utility of satellite services, small satellites, satellite networks to address State/reg'l challenges
- Assist key California industries in reducing costs, improving performance through intro of aerospace solutions
- Provide leadership on key national challenges such as climate change, environmental management, agricultural yield, energy independence, etc. by exploring capabilities of California aerospace to address these issues

Committee Recommendations

Ensure Global Innovation Edge through California Aerospace Retention/Growth

- Focus statewide economic development strategy on creation of a globally competitive entrepreneurial, knowledge-based economy, garnering input of Commission's Advisory Committees, leveraging Innovation-Driven Economic Development Model created for the state with USDOL funding
- Ensure statewide economic development innovation infrastructure by linking CA's diverse corporate R&D, entrepreneurial, academic and federal assets
- Align STEM education all educ'l levels and with industry needs for hi-tech prof'l workforce. Initiate STEM strategy in partnership with industry, building on foundation of STEM Collaborative Action Plan.

Committee Recommendations

Ensure Global Innovation Edge through California Aerospace Retention/Growth

- Ensure multiple student choices in reaching hi-tech workforce, including Career Technical Education (CTE) options providing certificates, and/or community college technical degrees enabling high school grads and others to earn good family wage
- Measure economic development success by number of hi-tech, family-wage jobs crated rather than the low-pay, low skill jobs generated. Consider use of Pollack Model as statewide standard to measure positive impact of CA firms, prove manufacturing value
- Explore ways to reduce business and aerospace operating costs in CA, prioritizing re-institution of CA R&D and production tax incentives, permit refinements

Committee Recommendations

Ensure Global Innovation Edge through California Aerospace Retention/Growth

- Provide incentives for CA companies seeking expansion opportunities to consider CA's economically distressed areas instead of other states
- Create center for air/space technology and entrepreneurship, ensuring linkage with education
- Consider developing aero/space technology grant program for innovators
- Support development/leverage of institutes featuring aerospace technology development
- Support Mojave Air and Space Port, 1st U.S. inland spaceport, for next generation spaceflight
- Continue to provide State leadership on reform of U.S. export licensing regulations